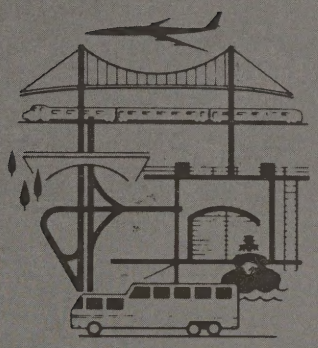
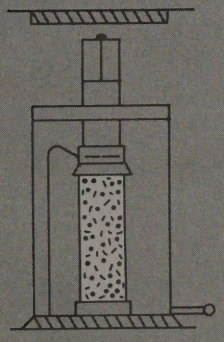
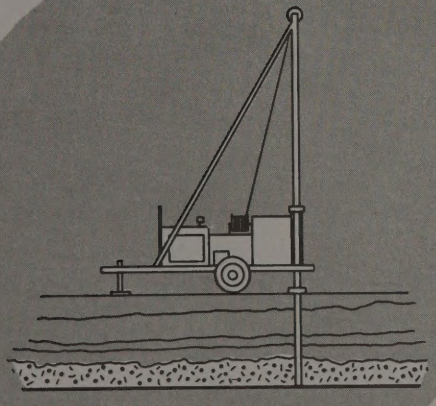
STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL ENGINEERING
BUREAU







PRELIMINARY GEOTECHNICAL EVALUATION
BARRON ROAD AND RIDGE ROAD SITES
STEWART AIRPORT

JULY 21, 1995

MEMORANDUM
DEPARTMENT OF TRANSPORTATION

TO: Steven T. Baldwin, Aviation Division, 4-150

FROM: Wesley P. Moody, Director, Geotechnical Engineering Bureau, 7-102

SUBJECT: **PRELIMINARY GEOTECHNICAL EVALUATION**
PROPOSED BARRON ROAD AND RIDGE ROAD SITES
STEWART AIRPORT

DATE: July 21, 1995

The subject preliminary report is attached. It is based on historic records, a field inspection by Bureau Engineering Geologists and the knowledge of our geotechnical engineers and engineering geologists familiar with design and construction in similar conditions in the vicinity of these two sites.

Also attached is a listing of services the geotechnical engineering program is capable of providing, if requested.

If further assistance is needed, please call me at 457-4712.

WPM:DM
Attachments

NYSDOT
Library
50 Wolf Road, POD 34
Albany, New York 12232

GEOTECHNICAL ENGINEERING SERVICES AVAILABLE FROM THE GEOTECHNICAL ENGINEERING BUREAU

Geotechnical engineering personnel are capable of providing full geotechnical engineering services from design concept through construction completion if requested, or any selected portion of the total project.

SUBSURFACE EXPLORATION

- Drilling

- Geophysical Surveys
  - Seismic Surveys
  - Resistivity Surveys

LABORATORY TESTING OF SOILS

- Classification tests
- Triaxial
- Consolidation
- Permeability

DESIGN ANALYSIS AND RECOMMENDATIONS

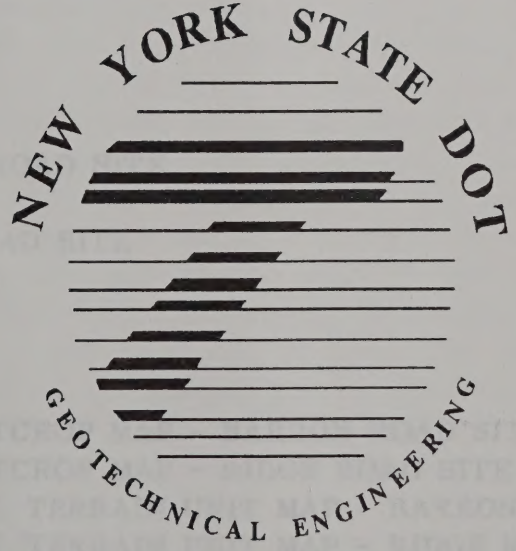
- Building foundation design and specifications
- Pavement Design - Roadway/Parking lots
- Erosion Controls
- Earthwork Specifications
- Granular Material Sources

CONSTRUCTION SUPPORT

- Technical assistance
  - Geotechnical Engineering assistance
  - Engineering Geologists assistance
    - Preblasting meetings; blasting safety
    - Vibration Monitoring
  - Field testing of soils
    - Gradation
    - Compaction
  - Laboratory soil testing

PRELIMINARY GEOTECHNICAL EVALUATION
BARRON ROAD AND RIDGE ROAD SITES
STEWART AIRPORT

NEW YORK STATE DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING BUREAU



JULY 21, 1995

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I. INTRODUCTION

This report synthesizes geologic and geotechnical data available at the Barron Road and Ridge Road development sites at Stewart Airport. A preliminary geotechnical evaluation of these sites by both experienced Geotechnical Engineers and Geologists familiar with design and construction in similar conditions in the vicinity of these sites has been addressed based on a summary of this data.

Generally, the soils at both sites are mapped as a dense till of varying thickness over shale bedrock with the exception of the areas delineated as wetlands.

We conclude that all earth and rock materials at both sites, excluding the areas delineated as wetlands, are fully capable of supporting the proposed development without special treatment and that there will be no unusual associated foundation costs.

II. GEOLOGIC HISTORY

The bedrock underlying the subject area consists entirely of the Ordovician Martinsburg Formation. This type of rock was originally deposited as layers of silt and sand, which later became lithified into alternating strata of sandstone and shale. Subsequent tectonic forces from the southeast folded these strata, so that the horizontal layers of shale and sandstone became nearly vertical layers of rock. Over time, these beds eroded at varying rates, with the soft shale eroding more quickly than the harder sandstone. This has left higher ridges of sandstone which generally trend north to south.

The bedrock topography in the area is generally covered by layers of unlithified glacial deposits. The most common of these is glacial till, an unstratified deposit consisting of silt, sand, cobbles, and boulders. There is also a deposit of lacustrine sand and gravel at the western edge of the subject area. This was the result of a temporary lake created by impounded glacial meltwater as ice retreated from the area, approximately 14,000 years ago.

The topographic elevation of both parcels varies from a low of about 400 feet above sea level to a high of 540 feet, on the Ridge Road property. The highest hills within all of Stewart Airport and the buffer zone are drumlins, which are streamlined hills consisting of compact till. The drumlins usually have a rock core. The till in the drumlins is extremely dense. Similar till formations on the

Airport, which were excavated recently, sometimes required blasting to remove the till.

There are wetlands present throughout the Stewart properties, which are generally at elevations below 430 feet. These are areas of poor drainage, where a thin cover of glacial till overlies bedrock.

A. BARRON ROAD SITE

The area of lacustrine sand and gravel (paragraph 2, above) straddles the Barron Road property, within the Town of Montgomery. The northern limit of the sand and gravel is about one mile south of I-84, and extends southward about one-half mile. The rest of the Barron Road property consists of glacial till over bedrock. There are no drumlin hills on the Barron Road property.

B. RIDGE ROAD SITE

The surficial geology of the Ridge Road property consists of glacial till. There is a drumlin present to the west of Ridge Road, approximately one-half mile south of I-84 and extending south for 3000 feet.

III. TERRAIN RECONNAISSANCE

The Surficial Terrain Unit Maps show broad areas of soil deposits that have similar engineering characteristics. The limits of the units were established using the Soil Conservation Servie maps for Orange County issued in 1981. The units were determined by considering parent material, climate considerations and depositional methods. Additionally, behavior of groundwater is indicated where it affects a unit for a significant portion of the year.

A. BARRON ROAD SITE

Please refer to Figure 3.

The topography of the site is generally flat to slightly rolling. The elevation ranges from 360 to 400 feet above sea level.

The predominate surficial soil deposit is thin till over bedrock. Bedrock is generally four feet or less below the surface. This depositional unit is very common in the

southern sector of the site, adjacent to and south of an area mapped as man-made cut and fill. Excavation of the overlying till can facilitate the location of footings on rock, and the general uniformity in elevations suggests that transition areas between soil and rock will be minimal. Excess water should not be a concern.

Another major depositional unit is a rock outcrop/thin till complex. This unit generally consists of 65% outcrop and 35% thin till. It can be found in the northern sector, surrounding areas of thin till and lacustrine deposits. Another large area of this complex occurs at the southeastern tip of the site. Rock cuts and earth/rock combination cuts can be expected if footing or floor elevations are to be located at shallow depths below existing ground surface.

The soil deposit in depressions in the northeast area of the site consists of poorly drained glacial lake deposits comprised of clay, silt, and fine sand. Cuts in this deposit can be troublesome, resulting in flowing conditions due to the fine-grained material. However, this problem should be minimized by the fact that his deposit is located in relatively small areas.

Other soil deposits on this site consist of relatively small areas of glacial outwash, deep till, poorly drained glacial lake deposits, and poorly drained organic deposits. The organic deposits occur in a narrow strip along the southwestern border of the site.

Please refer to the accompanying tables entitled "General Terrain Unit Characteristics," and "General Earth Engineering Considerations" for more detailed information concerning each depositional unit.

B. RIDGE ROAD SITE

Please refer to Figure 4.

The topography of the site is rolling to hilly. The elevation ranges from 400 to 540 feet above sea level. The highest elevation differential (140 feet vertical in 1000 feet horizontal) occurs in the southwestern quadrant of the site.

Thick till (greater than 5 feet) is the predominant surficial

soil deposit throughout the site. Relatively small deposits of lacustrine and poorly drained till are found in the northern sector of the site. These deposits are surrounded by thick till.

A stream enters the site at about the middle of the southern border, flowing basically north to the central portion of the site. At that point it then turns to the west, and exits the site at about the middle of the western border. The stream flows through deposits of recent alluvium, thin till and rock outcrop complex, and lacustrine bottom sediments as it traverses the site.

C. SUMMARY

The Federal Environmental Impact Statement for Stewart International Airport Properties prepared by Berger, Lehman Associates, July 1992, presents an overview of anticipated surface soil conditions. The two property areas now being considered were rated as moderate to severe for building site use. Their moderate to severe rating was based on existing slope inclinations and expected high water levels for small commercial sites.

We have evaluated the two property areas using an interpretation of existing soil mapping and criteria based on engineering behavior and have determined that the soils in each area provide a competent building foundation. The soils will exhibit suitable behavior for building foundations concerning bearing capacity, settlement, and stability. However, each site will require significant grading to accommodate a large (750 to 1500 feet X 1800 feet) building. The groundwater conditions can be controlled during construction with normal practices.

IV. SUBSURFACE INVESTIGATIONS

BORINGS

A search for all available subsurface explorations that were progressed in the vicinity of the two proposed sites was conducted by Bureau personnel. A total of nine subsurface explorations were located and are plotted on Figure 1 and Figure 2. The holes were originally progressed to support the preliminary engineering evaluation of potential Super Collider sites during May 1987. Copies

of the subsurface exploration logs are attached to this report.

Bedrock was encountered in all four inch cased drill holes. The depth to bedrock varied between ten to twenty feet below the ground surface and from approximate elevation 355 to elevation 440. Soil samples that were retrieved had blow counts ranging from 9 blows (NYS standard) or 12 (Standard Penetration) to 32 blows (NYS standard) or 41 (Standard Penetration). The samples were principally identified as sands, silts, and gravels. No layers of soft, plastic soils which could present difficult settlement and/or stability problems were encountered in the borings.

In addition to the NYSDOT borings, the U.S. Geological Survey has records of domestic water wells within the subject properties. One of these, #130-411-1, is located on Barron Rd., 250 feet south of I-84. It is a rock well 47 feet deep, which has four feet of casing. This means that there is four feet of overburden above the bedrock. The second well, #130-409-1 is located on Ridge Road, 800 feet south of I-84. It is a rock well 114 feet deep with 48 feet of casing, so that rock is 48 feet below ground surface. The locations of these wells are shown on Figure 1 and Figure 2.

SEISMIC

There were six seismic points shot on the subject site in 1987. The seismic points are in two groups of three points each. SP 20, 21, and 22 are located just west of Ridge Road, about 2400 feet south of I-84. SP 20, the westernmost of this group of points, shows a depth to rock of 17 feet, with seven feet of loose till over compact till over rock. SP 21 has a depth of 25 feet to rock, with seven feet of loose till over compact till. SP 22 shows a depth to rock of 33 feet, with 10 feet of loose till over compact till. The second cluster of seismic points is located about 850 west of Ridge Road, approximately 6000 feet south of I-84. SP 25, the northernmost of these three points, shows a depth of 24 feet to rock, with 7 feet of loose till overlying compact till. SP 24 has a depth to rock of 26 feet, with six feet of loose till overlying compact till. SP 23 shows 29 feet to rock, and also has six feet of loose till over compact till. All the seismic points are shown on Figure 1 and Figure 2.

V. CONCLUSIONS

- Generally, the soils at both sites are mapped as a dense till of varying thickness over bedrock.

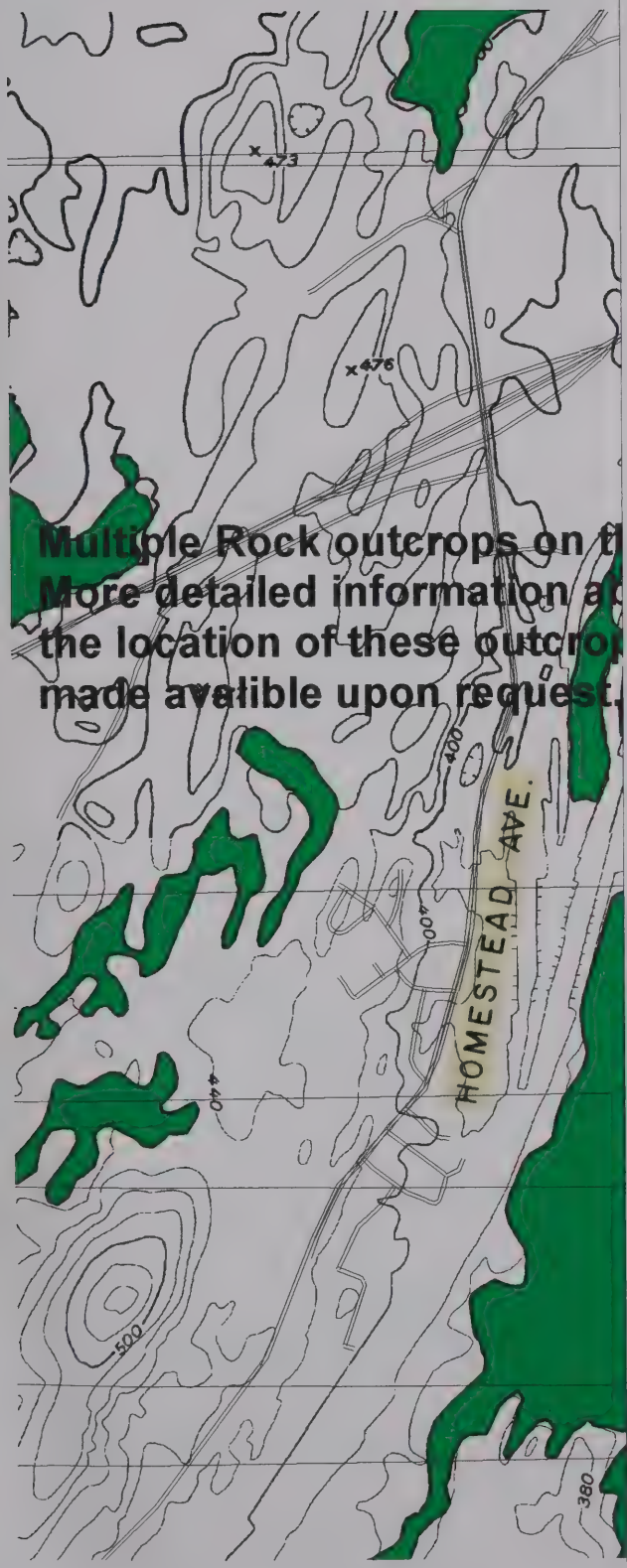
- Based on all information available, our preliminary assessment indicates that no major soil problems should be anticipated in the construction of the foundations for the proposed development at either the Ridge or Barron Road Sites.

- No unusual foundation treatments or costs are anticipated in founding the building(s) in cut locations. This statement applies to all areas excluding those mapped as wetlands.

- It is evident that considerable excavation will be necessary to obtain a suitable area for the proposed development.

- Based on our experience, the use of the till soils as embankment construction material can be a problem if the material is allowed to get wet. Generally, proper construction procedures, including good surface drainage, minimize this concern.

- Other developments have been successfully constructed in similar soil and rock conditions at the airport.



- Drill Holes (Depth to rock)
- Seismic Tests (Depth to rock)
- Orange County Roads
- Region 8 Rts.
- Orange County Wetlands (DEC)

N
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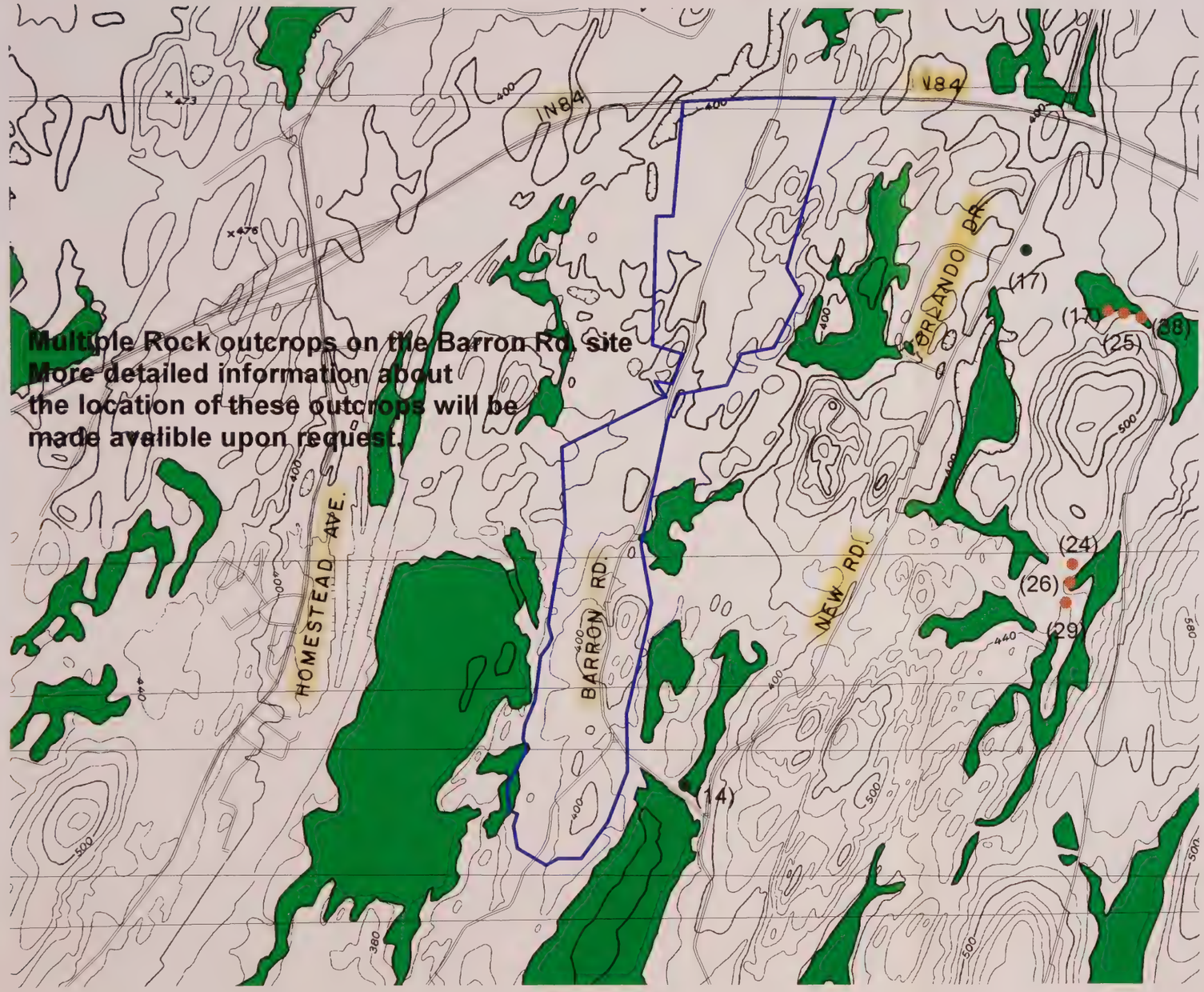
Figure 1
Rock Outcrop Map
Barron Rd. Site

Barron Road Site



- Drill Holes (Depth to rock)
- Seismic Tests (Depth to rock)
- Orange County Roads
- Region 8 Rts.
- Orange County Wetlands (DEC)

N
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Figure 1
Rock Outcrop Map
Barron Rd. Site

Ridge Road Site

- Drill Holes (Depth to rock)
- Seismic Tests (Depth to rock)
- Orange County Roads
- Region 8 Rts.
- Rock Outcrop Area (Ridge Road)
- Orange County Wetlands

Figure No. 2
RockOutcrop Map

N
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0.68 1.36 Miles

Ridge Road Site

- Drill Holes (Depth to rock)
- Seismic Tests (Depth to rock)
- Orange County Roads
- Region 8 Rts.
- Rock Outcrop Area (Ridge Road)
- Orange County Wetlands

Figure No. 2
RockOutcrop Map

N
W E
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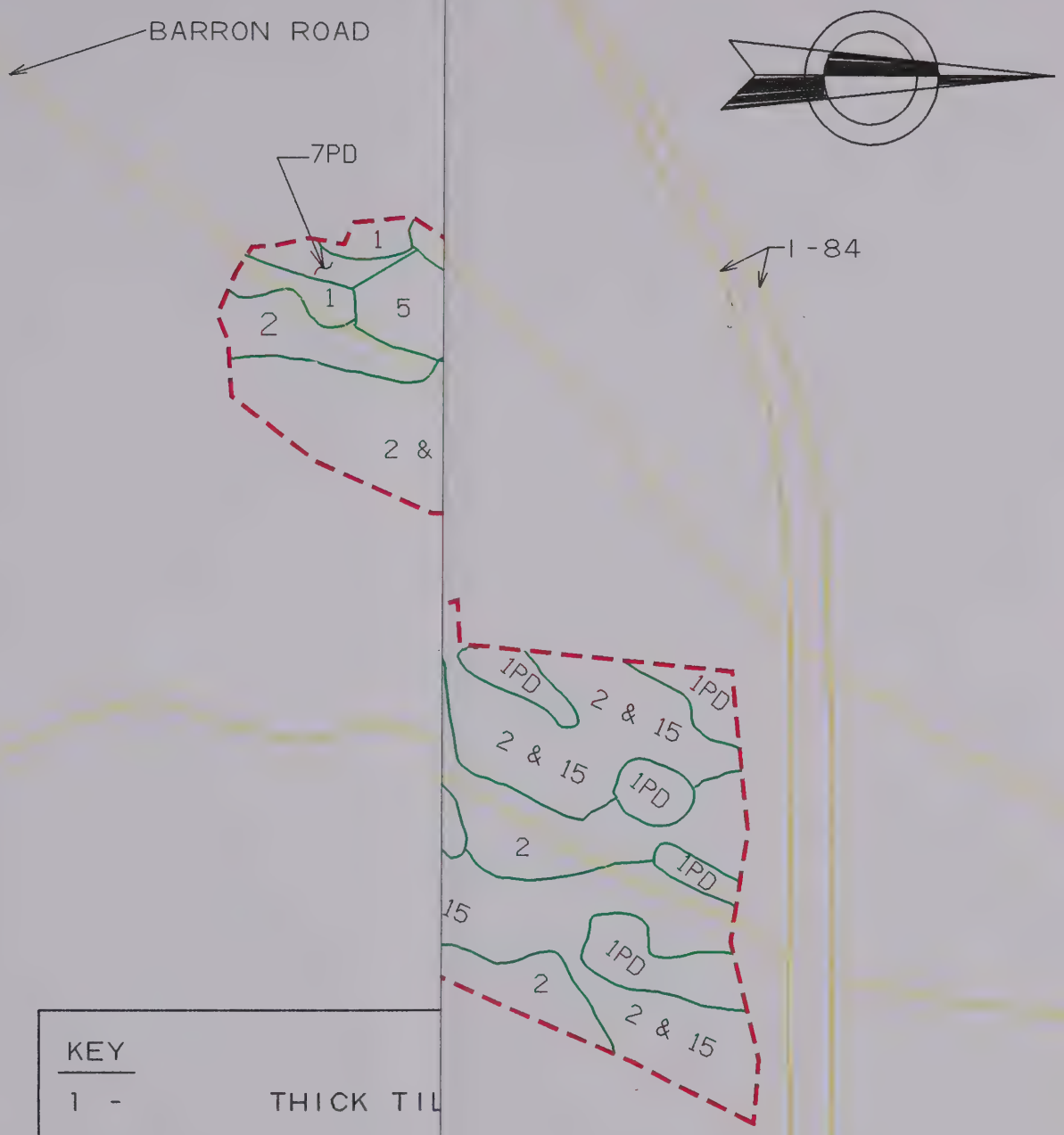
0.68 0 0.68 1.36 Miles



KEY

1 -	THICK TIL
1PD -	THICK TIL
2 -	THIN TILL
2 & 15 -	THIN TILL
5 -	OUTWASH D
7PD -	LACUSTRIN POORLY DR
13 -	ORGANIC D
17 -	MANMADE F

(SEE TABLES 1 & 2 F

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STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
TECHNICAL SERVICES DIVISION

FIGURE 3
SURFICIAL TERRAIN UNIT MAP
BARRON ROAD SITE

NEW ROAD

KEY

1 -	THICK TILL
1PD -	THICK TILL, POORLY DRAINED
2 -	THIN TILL
2 & 15 -	THIN TILL & BEDROCK
5 -	OUTWASH DEPOSITS
7PD -	LACUSTRINE BOTTOM SEDIMENTS POORLY DRAINED
13 -	ORGANIC DEPOSITS
17 -	MANMADE FEATURES

(SEE TABLES 1 & 2 FOR DETAILED DATA

SCALE: 1" = 1000'

Prepared by: J.A.C.
Drawn by: R.J.C.
Reviewed by: J.A.C.
Checked by:

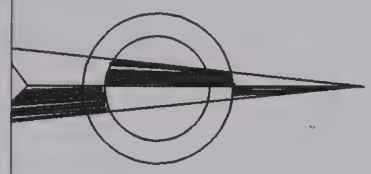
APPROVED

DIRECTOR
GEOTECHNICAL ENGINEERING BUREAU

REGION NO. 8
COUNTY: ORANGE
DWG. NO.

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
TECHNICAL SERVICES DIVISION

FIGURE 3
SURFICIAL TERRAIN UNIT MAP
BARRON ROAD SITE



KEY

1 - THICK TILL

1PD - THICK TILL
POORLY DRAINED

2 & 15 - THIN TILL
& BEDROCK

6PD - LACUSTRINE
SHORE DEPOSITS,
POORLY DRAINED

7 - LACUSTRINE
BOTTOM SEDIMENTS

10 - RECENT ALLUVIUM

(SEE TABLES 1 & 2 FOR
DETAILED DATA)

1

1PD

I-84

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GE

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
TECHNICAL SERVICES DIVISION

FIGURE 4
SURFICIAL TERRAIN UNIT MAP
RIDGE ROAD SITE

SCALE: 1" = 500'

Prepared by: J.A.C.
Drawn by: R.J.C.
Reviewed by: J.A.C.
Checked by:

APPROVED

DIRECTOR
GEOTECHNICAL ENGINEERING BUREAU

REGION NO. 8
COUNTY: ORANGE
DWG. NO.

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
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FIGURE 4
SURFICIAL TERRAIN UNIT MAP
RIDGE ROAD SITE

TABLE 1

GENERAL TERRAIN UNIT CHARACTERISTICS

SYMBOL	TERRAIN UNITS	MODE OF ORIGIN	LANDFORM	COMMON TOPOGRAPHIC POSITION	PARTICLE SIZE AND DISTRIBUTION	RELATIVE PERMEABILITY	REMARKS
1	THICK TILL	SEDIMENTS PICKED UP, TRANSPORTED, MIXED, AND DEPOSITED BY GLACIAL ICE, MINIMAL WATER TRANSPORT. COMPACTION BY OVERRIDING ICE OR SETTLING DURING DEWATERING.	NEARLY LEVEL TO STEEP SLOPES.	TILL PLAINS, FLANKS AND TOPS OF HILLS.	CLAY TO BOULDERS, GENERALLY UNSORTED AND UNSTRATIFIED. THE SOILS VARY IN COMPOSITION ACCORDING TO THE ROCK FROM WHICH THEY WERE DERIVED.	VERY SLOW TO RAPID.	HARD LAYER NEAR THE SURFACE MAY PREVENT DOWNWARD MOVEMENT OF WATER.
2	THIN TILL	SEDIMENTS PICKED UP, TRANSPORTED MIXED, AND DEPOSITED BY GLACIAL ICE, MINIMAL WATER TRANSPORT. COMPACTION BY OVERRIDING ICE OR SETTLING DURING DEWATERING.	NEARLY LEVEL TO MODERATELY STEEP. TILL PLAINS AND VALLEY SIDES. LANDFORMS MAY BE BEDROCK CONTROLLED.	TILL PLAINS, INCISED DRAINAGE WAYS, FLANKS AND TOPS OF HILLS.	CLAY TO BOULDERS, GENERALLY UNSORTED AND UNSTRATIFIED MINOR WATER SORTED POCKETS. THE SOILS VARY IN COMPOSITION ACCORDING TO THE ROCK FROM WHICH THEY WERE DERIVED.	VERY SLOW TO RAPID.	DEPTH TO BEDROCK LESS THAN FOUR FEET. NUMEROUS ROCK FRAGMENTS NEAR BEDROCK SURFACE. THE UNDERLYING BEDROCK MAY CONTROL THE LANDFORM.
2 & 15	THIN TILL & BEDROCK	SEE INDIVIDUAL EXPLANATIONS FOR THIN TILL AND BEDROCK UNITS.	THE BEDROCK UNDERLIES AND CONTROLS THE SURFACE.	STREAM CHANNELS, FLAT PLAINS.	SEE INDIVIDUAL EXPLANATION FOR THIN TILL.	SLOW TO RAPID.	OUTCROPPING OF BEDROCK WILL OCCUR. SEE THE INDIVIDUAL EXPLANATION FOR THIN TILL.
5	OUTWASH DEPOSITS	SEDIMENTS TRANSPORTED BY MELTWATERS AWAY FROM ICE MASS.	FLAT TO GENTLY UNDULATING TERRACES AND PLAINS.	LOWER VALLEY WALLS AND FLOORS.	CLAY THROUGH COBBLES, SAND AND GRAVEL PREDOMINATE. WELL-SORTED, MASSIVE, NEARLY HORIZONTAL STRATIFICATION.	MODERATE TO VERY RAPID.	MOSTLY NON-PLASTIC
6	LACUSTRINE SHORE DEPOSITS	SEDIMENTS TRANSPORTED BY WATER COURSES FLOWING INTO GLACIAL LAKES AND SETTLING. WAVE ACTION ALONG SHORES.	DELTAS, BEACHES AND BARS. FLAT TO GENTLY UNDULATING PLAINS.	HIGH ON VALLEY WALLS, EDGE OF VALLEY FLOORS. EDGES OF LOWLANDS.	CLAY THROUGH COBBLES, SILT AND SAND PREDOMINATE. WELL-SORTED BEDS. NEARLY HORIZONTAL, DISTINCT STRATIFICATION.	MODERATELY SLOW TO RAPID.	MOSTLY NON-PLASTIC MAY OVERLIE SILT AND CLAY OR TILL.

SYMBOL	TERRAIN UNITS	MODE OF ORIGIN	LANDFORM	COMMON TOPOGRAPHIC POSITION	PARTICLE SIZE AND DISTRIBUTION	RELATIVE PERMEABILITY	REMARKS
7	LACUSTRINE BOTTOM SEDIMENTS	SEDIMENTS DEPOSITED IN DEEP, QUIET WATER OF GLACIAL LAKES.	FLAT TO GENTLY UNDULATING PLAINS.	ON KNOBS AND DEPRESSIONS OF VALLEY FLOORS AND LOWLANDS.	CLAY TO FINE SAND, MOSTLY SILT AND CLAY. WELL-SORTED BEDS. NEARLY HORIZONTAL, DISTINCT STRATIFICATION.	VERY SLOW VERTICALLY, SLOW HORIZONTALLY.	LAMINATIONS COMMONLY CALLED VARVES. HIGHLY PLASTIC.
10	RECENT ALLUVIAL DEPOSITS	SEDIMENTS DEPOSITED BY FLOOD WATER.	FLOOD PLAINS SUBJECT TO OVERFLOW.	ALONG WATER-COURSE.	CLAY TO COBBLES, THE TEXTURE OF THESE SOILS VARY BOTH HORIZONTALLY AND VERTICALLY AND REFLECT THE CHARACTERISTICS OF THE PARENT MATERIAL. COARSER MATERIAL USUALLY NEAREST CHANNEL AND BECOMING FINER TOWARDS EXTREMITIES.	VARIABLE.	USUALLY UNDERLAIN BY ADJACENT DEPOSITS. MAY BE PLASTIC. HIGH WATER TABLE.
13	ORGANIC DEPOSITS	ACCUMULATION OF ORGANIC AND INORGANIC MATERIAL IN BODY OF WATER.	DEPRESSIONS.	ALONG WATER-COURSES. HEADWATER OF UPLAND STREAMS, VALLEY FLOOR DEPRESSIONS.	CLAY TO FINE SAND AND ORGANIC MATTER, UNSORTED. IRREGULAR STRATIFICATION.	VARIABLE, HIGH WATER TABLE.	PLASTICITY VARIES. DEPTH TO MINERAL SOIL VARIES, BUT MAY EXTEND TO SOME DEPTH.
15	BEDROCK	THE MODE OF ORIGIN AND TYPE OF BEDROCK VARY CONSIDERABLY WITHIN THE REGION. PROJECTS WILL REQUIRE INDIVIDUAL INVESTIGATION.	UNDERLIES AND CONTROLS THE SURFACE OF LARGE FEATURES.	STEEPER PORTIONS OF VALLEY SLOPES, INCISED DRAINAGEWAYS, STEEP CLIFFS, LARGE FLAT AREAS.		VARIABLE. DEPENDS ON ROCK TYPE, JOINTS, FRACTURES, ETC.	MAY BE MAPPED IN COMBINATION WITH THIN TILL.
17	MAN-MADE FEATURES		EXCAVATED, FILLED OVER OR OTHERWISE MODIFIED.	NO LONGER DISPLAYS THE IDENTIFYING NATURAL TOPOGRAPHIC FEATURES.			PROBABLY SIMILAR TO SOILS OF THE ADJACENT MAJOR TERRAIN UNITS.
PD	POORLY DRAINED			THESE ARE POORLY DRAINED PHASES OF THE ABOVE TERRAIN UNITS. THEY ARE SIMILAR IN CHARACTER TO THE DESCRIBED UNIT EXCEPT THAT THE SOIL REMAINS WET FOR A LARGE PART OF THE TIME. THESE SOILS ARE USUALLY WATER LOGGED DURING THE LATE FALL, WINTER AND EARLY SPRING. THE WATER TABLE REMAINS NEAR THE SURFACE EXCEPT DURING THE USUALLY WARM, DRY MONTHS.		

TABLE 2

GENERAL EARTH ENGINEERING CONSIDERATIONS

MAP SYMBOL	TERRAIN UNIT	HIGHWAY LOCATION	CUTSLOPE CONDITIONS	SUBGRADE CONDITIONS	SOURCE OF MATERIALS
1	THICK TILL	NOT CRITICAL.	POSSIBILITY OF SURFACE SEEPAGE AND SLOUGHING. MAY REQUIRE SLOPE PROTECTION.	GENERALLY GOOD.	COMMON BORROW.
1PD	THICK TILL POORLY DRAINED	GENERALLY NOT CRITICAL. CUTS MAY BE WET.	SEEPAGE AND SLOUGHING PROBABLE, MAY REQUIRE SLOPE PROTECTION.	MAY BE WET.	COMMON BORROW. MAY BE WET.
2	THIN TILL	NOT CRITICAL.	ROCK OR EARTH-ROCK COMBINATIONS. ROCK EXCAVATION MAY BE REQUIRED.	ROCK MAY BE ENCOUNTERED. TRANSITION SECTIONS NECESSARY.	COMMON BORROW. LOW SOIL YIELD.
2 & 15	THIN TILL AND BEDROCK	NOT CRITICAL. SKIM CUTS NOT ADVISABLE.	ROCK OR EARTH-ROCK COMBINATIONS. ROCK EXCAVATION MAY BE REQUIRED.	ROCK USUALLY ENCOUNTERED. TRANSITION SECTIONS NECESSARY.	COMMON BORROW. LOW SOIL YIELD.
5	OUTWASH DEPOSITS	GENERALLY NOT CRITICAL. FOUNDATIONS FOR EMBANKMENTS OVER 25 FEET HIGH MAY BE UNSTABLE IF UNDERLAIN BY WEAKER DEPOSITS.	GENERALLY GOOD. POSITIVE DRAINAGE MAY BE REQUIRED TO PREVENT EROSION.	GENERALLY GOOD. MAY BE NON-UNIFORM.	COMMON BORROW AND GRANULAR MATERIALS.
6	LACUSTRINE SHORE DEPOSITS	FOUNDATIONS FOR EMBANKMENTS OVER 25 FEET HIGH PROBABLY UNSTABLE. CUTS WILL BE TROUBLESOME.	GENERALLY POOR. PROBLEMS OF EROSION OF FINE-GRAINED MATERIALS. MAY REQUIRE SLOPE PROTECTION OR FLATTENING FOR STABILITY.	SOFT, FINE-GRAINED MATERIAL. WET WITH DEPTH. POSSIBLE TRAFFICABILITY DIFFICULTIES. CONSIDER UNDERCUT.	COMMON BORROW. MAY BE OVER OPTIMUM MOISTURE CONTENT.

MAP SYMBOL	TERRAIN UNIT	HIGHWAY LOCATION	CUTSLOPE CONDITIONS	SUBGRADE CONDITIONS	SOURCE OF MATERIALS
6PD	LACUSTRINE SHORE DEPOSITS POORLY DRAINED.	FOUNDATIONS FOR EMBANKMENTS OVER 25 FEET HIGH PROBABLY UNSTABLE. CUTS WILL BE TROUBLESOME.	GENERALLY POOR. PROBLEMS OF FINE-GRAINED FLOWING MATERIALS. WILL REQUIRE SLOPE PROTECTION AND FLATTENING FOR STABILITY.	WET, SOFT, FINE-GRAINED MATERIALS. TRAFFICABILITY DIFFICULTIES POSSIBLE. CONSIDER UNDERCUT.	COMMON BORROW. WILL BE WET.
7	LACUSTRINE BOTTOM SEDIMENTS	FOUNDATIONS FOR EMBANKMENTS 25 FEET HIGH PROBABLY UNSTABLE. CUTS WILL BE TROUBLESOME.	GENERALLY POOR. PROBLEMS OF FINE-GRAINED FLOWING MATERIALS. MAY REQUIRE SLOPE PROTECTION AND FLATTENING FOR STABILITY.	FINE-GRAINED MATERIALS MAY BE SOFT AND WET. TRAFFICABILITY DIFFICULTIES POSSIBLE. CONSIDER UNDERCUT.	COMMON BORROW. MAY BE OVER OPTIMUM MOISTURE CONTENT.
7PD	LACUSTRINE BOTTOM SEDIMENTS POORLY DRAINED	FOUNDATIONS FOR EMBANKMENTS 25 FEET HIGH PROBABLY UNSTABLE. CUTS WILL BE TROUBLESOME.	GENERALLY POOR. PROBLEMS OF FINE-GRAINED FLOWING MATERIALS. MAY REQUIRE SLOPE PROTECTION AND FLATTENING FOR STABILITY.	WET, SOFT, FINE-GRAINED MATERIALS. TRAFFICABILITY DIFFICULTIES, CONSIDER UNDERCUT.	COMMON BORROW. MAY BE OVER OPTIMUM MOISTURE CONTENT.
10	RECENT ALLUVIAL DEPOSITS	LOCATE ABOVE EXPECTED HIGH WATER ELEVATION. FOUNDATIONS FOR EMBANKMENTS OVER 25 FEET HIGH MAY BE UNSTABLE. CUTS NOT ADVISABLE.	WATER PROBLEMS.	NON-UNIFORM. HIGHLY VARIABLE MATERIALS. MAY BE WET.	COMMON BORROW. MAY BE OVER OPTIMUM MOISTURE CONTENT.
13	ORGANIC DEPOSITS	LOCATE ABOVE EXPECTED HIGH WATER ELEVATION. CUTS NOT ADVISABLE.	WATER PROBLEMS.	UNSUITABLE MATERIAL. MUST BE REMOVED AND REPLACED.	NOT SUITABLE.
17	MAN-MADE FEATURES	NO ENGINEERING INTERPRETATIONS ARE POSSIBLE WITHOUT SPECIFIC INFORMATION.			

DRILL LOGS

SUPER COLLIDER - NEWBURGH SITE (EAST)

P.I.N. A030.00.701

SM 282E (2/76)

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING BUREAU
SUBSURFACE EXPLORATION LOG

PSN 6647 BORNUM 101
REGION 8
COUNTY ORANGE
PIN A030.00.701
PROJECT SUPER COLLIDER - NEWBURGH SITE (EAST)
COORDINATE LOC. (A) NORTH EAST

HOLE DN-X-N101
LINE E.O.P
STA SEE MAP
OFFSET 10
SURF. ELEV. 400 Ft.
DEPTH TO WATER 2 Ft.

DATE START 11-MAY-87 DATE FINISH 11-MAY-87

CASING O.D. 4 1/2" I.D. 4" WEIGHT OF HAMMER-CASING 300 LBS HAMMER FALL-CASING 18 INS
SAMPLER O.D. 3 1/2" I.D. 3" WEIGHT OF HAMMER-SAMPLER 300 LBS HAMMER FALL-SAMPLER 18 INS

DEPTH Ft BELOW SURFACE	BLOWS ON CASING	SAMPLE NO.	BLOWS ON SAMPLER 0/.5	.5/1.0	1.0/1.5	1.5/2.0	DESCRIPTION OF SOIL AND ROCK	MOIST. CONT. (%)
0.0		J1	P				Light Brown Clayey SILT ,Sandy W/Root Fibers & Small (M-LPL)	22
	4						% Of Gravel	
	5	J2	P				Brown Sandy GRAVEL ,Silty, W/Small % Of Clay (M-LPL)	12
				4				
	21				15			
	35							
5.0	18							
		J3	10				Brown Gravelly SAND ,Silty (M-NPL)	14
	3			6				
					6			
	14							
	15							
	18							
10.0	90							
	2							
	2							
	10							
	10							
		J4	3				Brown Gravelly SILT ,Sand (M-NPL)	19
15.0	53			7				
					13			
	94							
	61							
	86							
	105	R1					Run #1 Medium Gray SHALE	
							REC. 53.8" 93%	
20.0							RQD = 84.4%	

BOTTOM OF HOLE AT 23.5 Ft.

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR STATE DESIGN AND ESTIMATE PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO THE STATE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGEMENT OF SUCH AUTHORIZED USERS.

CONTRACT _____ CONTRACTOR _____

DRILL RIG OPERATOR R. DECKER
SOIL & ROCK DESCRIPTION D. KIMMEL, J. BOUCHARD
REG GEOTECHNICAL ENGINEER PHILLIP A. WALTON BY JOHN C. REAGAN
DATE APPROVED 19-JUL-95 REVISION #1
STRUCTURE NAME NEW RD. 4100' W OF JCT OF RIDGE RD.
B.I.N. _____

SM 282E (2/76)

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING BUREAU
SUBSURFACE EXPLORATION LOG

PSN 6647 BORNUM 101
REGION 8
COUNTY ORANGE
PIN A030.00.701
PROJECT SUPER COLLIDER - NEWBURGH SITE (EAST)
COORDINATE LOC. (A) NORTH EAST

HOLE DN-X-N101
LINE E.O.P
STA SEE MAP
OFFSET 10
SURF. ELEV. 400 Ft.
DEPTH TO WATER 2 Ft.

DATE START 11-MAY-87 DATE FINISH 11-MAY-87

CASING	O.D. 4 1/2"	I.D. 4"	WEIGHT OF HAMMER-CASING 300 LBS	HAMMER FALL-CASING 18 INS
SAMPLER	O.D. 3 1/2"	I.D. 3"	WEIGHT OF HAMMER-SAMPLER 300 LBS	HAMMER FALL-SAMPLER 18 INS

ADDITIONAL NOTES

Surface elevation is based on USGS topographic map

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR STATE DESIGN AND ESTIMATE PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO THE STATE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGEMENT OF SUCH AUTHORIZED USERS.

CONTRACT _____ CONTRACTOR _____

DRILL RIG OPERATOR R. DECKER
SOIL & ROCK DESCRIPTION D. KIMMEL, J. BOUCHARD
REG GEOTECHNICAL ENGINEER PHILLIP A. WALTON BY JOHN C. REAGAN
DATE APPROVED 19-JUL-95 REVISION #1
STRUCTURE NAME NEW RD. 4100' W OF JCT OF RIDGE RD.
B.I.N. _____

SM 282E (2/76)

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING BUREAU
SUBSURFACE EXPLORATION LOG

PSN 6647 BORNUM 102
REGION 8
COUNTY ORANGE
PIN A030.00.701
PROJECT SUPER COLLIDER - NEWBURGH SITE (EAST)
COORDINATE LOC. (A) NORTH EAST

HOLE DN-X-N102
LINE E.O.P
STA SEE MAP
OFFSET 5
SURF. ELEV. 400 Ft.
DEPTH TO WATER 5 Ft.

DATE START 11-MAY-87 DATE FINISH 11-MAY-87

CASING O.D. 2 7/8" I.D. 2 1/4" WEIGHT OF HAMMER-CASING 300 LBS HAMMER FALL-CASING 18 INS
SAMPLER O.D. 2" I.D. 1 1/2" WEIGHT OF HAMMER-SAMPLER 300 LBS HAMMER FALL-SAMPLER 18 INS

DEPTH ft BELOW SURFACE	BLOWS ON CASING	SAMPLE NO.	BLOWS ON SAMPLER 0/.5	.5/1.0	1.0/1.5	1.5/2.0	DESCRIPTION OF SOIL AND ROCK	MOIST. CONT. (%)
0.0		J1	2				Brown Sandy GRAVEL , Silty W/ Root Fibers & Organic (M-NPL)	11
	1			2				
					4			
	3							
	1							
	2							
5.0	1							
		J2	10				Brown Clayey SILT , Sandy & Silty Clay Gr W/ Small % (M-LPL)	19
	8			14			Of Gravel	
					18			
	10							
	24							
	20							
10.0	27							
		J3	5				Dark Brown Silty SAND , W/ Organic (M-NPL)	22
	25			7	"			
		J4					Gray Sandy SILT (M-NPL)	19
	45							
					9			
	40							
	63							
15.0	141							
	210							
		J5	30				Gray Gravelly SAND , Silt (M-NPL)	8
		B1		31			BOULDER	
							REC. 0" 0%	
		R1					Run #1 . SHALE	
							REC. 18" 33% 16 PIECES	
20.0								

BOTTOM OF HOLE AT 23 Ft.

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR STATE DESIGN AND ESTIMATE PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO THE STATE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGEMENT OF SUCH AUTHORIZED USERS.

CONTRACT _____ CONTRACTOR _____

DRILL RIG OPERATOR C. LUNDEN
SOIL & ROCK DESCRIPTION D. KIMMEL, J. BOUCHARD
REG GEOTECHNICAL ENGINEER PHILLIP A. WALTON BY JOHN C. REAGAN
DATE APPROVED 19-JUL-95 REVISION #1
STRUCTURE NAME NEW RD. 2300' W OF JCT OF RIDGE RD.
B.I.N. _____

SM 282E (2/76)

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING BUREAU
SUBSURFACE EXPLORATION LOG

PSN 6647 BORNUM 102
REGION 8
COUNTY ORANGE
PIN A030.00.701
PROJECT SUPER COLLIDER - NEWBURGH SITE (EAST)
COORDINATE LOC. (A) NORTH EAST

HOLE DN-X-N102
LINE E.O.P
STA SEE MAP
OFFSET 5
SURF. ELEV. 400 Ft.
DEPTH TO WATER 5 Ft.

DATE START 11-MAY-87 DATE FINISH 11-MAY-87

CASING O.D. 2 7/8" I.D. 2 1/4" WEIGHT OF HAMMER-CASING 300 LBS HAMMER FALL-CASING 18 INS
SAMPLER O.D. 2" " I.D. 1 1/2" WEIGHT OF HAMMER-SAMPLER 300 LBS HAMMER FALL-SAMPLER 18 INS

ADDITIONAL NOTES

Surface elevation is based on USGS topographic map

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR STATE DESIGN AND ESTIMATE PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO THE STATE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGEMENT OF SUCH AUTHORIZED USERS.

CONTRACT _____ CONTRACTOR _____

DRILL RIG OPERATOR C. LUNDEN
SOIL & ROCK DESCRIPTION D. KIMMEL, J. BOUCHARD
REG GEOTECHNICAL ENGINEER PHILLIP A. WALTON BY JOHN C. REAGAN
DATE APPROVED 19-JUL-95 REVISION #1
STRUCTURE NAME NEW RD. 2300' W OF JCT OF RIDGE RD.
B.I.N. _____

SM 282E (2/76)

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING BUREAU
SUBSURFACE EXPLORATION LOG

PSN 6647 BORNUM 103
REGION 8
COUNTY ORANGE
PIN A030.00.701
PROJECT SUPER COLLIDER - NEWBURGH SITE (EAST)
COORDINATE LOC. (A) NORTH EAST

HOLE RP- -103
LINE BASE LINE
STA SEE MAP
OFFSET 10
SURF. ELEV. 390 Ft.
DEPTH TO WATER 2 Ft.

DATE START 15-MAY-87 DATE FINISH 15-MAY-87

CASING O.D. 1" I.D. 7/8" WEIGHT OF HAMMER-CASING 40 LBS HAMMER FALL-CASING 18 INS
SAMPLER O.D. I.D. WEIGHT OF HAMMER-SAMPLER LBS HAMMER FALL-SAMPLER INS

DEPTH ft BELOW SURFACE	BLOWS ON CASING	SAMPLE NO.	BLOWS ON SAMPLER 0/.5	.5/1.0	1.0/1.5	1.5/2.0	DESCRIPTION OF SOIL AND ROCK	MOIST. CONT. (%)
0.0							Brown Silty SAND ,W/ Root Fibers & Pieces Of Wood And (M-NPL)	
	12						Org	
		J1						37
	17							
	20							
							Gray Silty SAND ,Clayey W/ Root Fibers (M-LPL)	
	32							
5.0	97	J2						17
	139							
	145							
		J3					Gray Silty SAND (M-NPL)	15
	153							

BOTTOM OF HOLE AT 8 Ft.

Surface elevation is based on USGS topographic map

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR STATE DESIGN AND ESTIMATE PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO THE STATE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGEMENT OF SUCH AUTHORIZED USERS.

CONTRACT _____ CONTRACTOR _____

DRILL RIG OPERATOR C. LUNDEN
SOIL & ROCK DESCRIPTION D. KIMMEL, J. BOUCHARD
REG GEOTECHNICAL ENGINEER PHILLIP A. WALTON BY JOHN C. REAGAN
DATE APPROVED 19-JUL-95 REVISION #1
STRUCTURE NAME WEED RD. 3000' W OF JCT OF RIDGE RD.
B.I.N. _____

SHEET 1 OF 1 HOLE RP- -103

SM 282E (2/76)

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING BUREAU
SUBSURFACE EXPLORATION LOG

PSN 6647 BORNUM 104
REGION 8
COUNTY ORANGE
PIN A030.00.701
PROJECT SUPER COLLIDER - NEWBURGH SITE (EAST)
COORDINATE LOC. (A) NORTH EAST

HOLE RP- -104
LINE BASE LINE
STA SEE MAP
OFFSET 50
SURF. ELEV. 390 Ft.
DEPTH TO WATER 2 Ft.

DATE START 15-MAY-87 DATE FINISH 15-MAY-87

CASING O.D. 1" I.D. 7/8" WEIGHT OF HAMMER-CASING 40 LBS HAMMER FALL-CASING 18 INS
SAMPLER O.D. I.D. WEIGHT OF HAMMER-SAMPLER LBS HAMMER FALL-SAMPLER INS

DEPTH ft BELOW SURFACE	BLOWS ON CASING	SAMPLE NO.	BLOWS ON SAMPLER 0/.5	.5/1.0	1.0/1.5	1.5/2.0	DESCRIPTION OF SOIL AND ROCK	MOIST. CONT. (%)
0.0							Gray Brown Silty SAND ,Clayey With/ Root Fibers (M-LPL)	
	12							
	17	J1						24
	15							
							Gray Silty SAND ,With/ Small % Of Gravel (M-NPL)	
	13							
5.0	20							
		J2						14
	26							
	69							
	99							

BOTTOM OF HOLE AT 7.2 Ft.

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR STATE DESIGN AND ESTIMATE PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO THE STATE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGEMENT OF SUCH AUTHORIZED USERS.

CONTRACT _____ CONTRACTOR _____

DRILL RIG OPERATOR C. LUNDEN
SOIL & ROCK DESCRIPTION D. KIMMEL, J. BOUCHARD
REG GEOTECHNICAL ENGINEER PHILLIP A. WALTON BY JOHN C. REAGAN
DATE APPROVED 19-JUL-95 REVISION #1
STRUCTURE NAME WEED RD. 3000' W OF JCT OF RIDGE RD.
B.I.N. _____

SHEET 1 OF 1 HOLE RP- -104

SM 282E (2/76)

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING BUREAU
SUBSURFACE EXPLORATION LOG

PSN 6647 BORNUM 105
REGION 8
COUNTY ORANGE
PIN A030.00.701
PROJECT SUPER COLLIDER - NEWBURGH SITE (EAST)
COORDINATE LOC. (A) NORTH EAST

HOLE RP- -105
LINE BASE LINE
STA SEE MAP
OFFSET 150
SURF. ELEV. 390 Ft.
DEPTH TO WATER NONE

DATE START 15-MAY-87 DATE FINISH 15-MAY-87

CASING O. D. 1" I. D. 7/8" WEIGHT OF HAMMER-CASING 40 LBS HAMMER FALL-CASING 18 INS
SAMPLER O. D. I. D. WEIGHT OF HAMMER-SAMPLER LBS HAMMER FALL-SAMPLER INS

DEPTH ft BELOW SURFACE	BLOWS ON CASING	SAMPLE NO.	BLOWS ON SAMPLER 0/.5	.5/1.0	1.0/1.5	1.5/2.0	DESCRIPTION OF SOIL AND ROCK	MOIST. CONT. (%)
0.0								
	11						Brown Silty SAND, Light Brown Silty S-A-N-D, Clayey (M-LPL)	
	18	J1						38
	40							
		J2					Light Brown Sandy SILT, Clayey, & Gray Brown Silty (M-LPL)	18
	68						S-A-N-D w/Root Fibers	

BOTTOM OF HOLE AT 3.7 Ft.

Surface elevation is based on USGS topographic map

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CONTRACT _____ CONTRACTOR _____

DRILL RIG OPERATOR C. LUNDEN
SOIL & ROCK DESCRIPTION D. KIMMEL, J. BOUCHARD
REG GEOTECHNICAL ENGINEER PHILLIP A. WALTON BY JOHN C. REAGAN
DATE APPROVED 19-JUL-95 REVISION #1
STRUCTURE NAME WEED RD. 2800' W OF JCT OF RIDGE RD.
B.I.N. _____

SM 282E (2/76)

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING BUREAU
SUBSURFACE EXPLORATION LOG

PSN 6647 BORNUM 106
REGION 8
COUNTY ORANGE
PIN A030.00.701
PROJECT SUPER COLLIDER - NEWBURGH SITE (EAST)
COORDINATE LOC. (A) NORTH EAST

HOLE RP- -106
LINE BASE LINE
STA SEE MAP
OFFSET 100
SURF. ELEV. 390 Ft.
DEPTH TO WATER NONE

DATE START 15-MAY-87 DATE FINISH 15-MAY-87

CASING O.D. 1" I.D. 7/8" WEIGHT OF HAMMER-CASING 40 LBS HAMMER FALL-CASING 18 INS
SAMPLER O.D. I.D. WEIGHT OF HAMMER-SAMPLER LBS HAMMER FALL-SAMPLER INS

DEPTH ft BELOW SURFACE	BLOWS ON CASING	SAMPLE NO.	BLOWS ON SAMPLER 0/.5	.5/1.0	1.0/1.5	1.5/2.0	DESCRIPTION OF SOIL AND ROCK	MOIST. CONT. (%)
0.0							Gray Brown Silty SAND ,With/ Root Fibers & Small % Of (M-NPL)	
	28						Gravel	
		J1						13
	26							

BOTTOM OF HOLE AT 2.8 Ft.

Surface elevation is based on USGS topographic map

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR STATE DESIGN AND ESTIMATE PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO THE STATE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGEMENT OF SUCH AUTHORIZED USERS.

CONTRACT _____ CONTRACTOR _____

DRILL RIG OPERATOR C. LUNDEN
SOIL & ROCK DESCRIPTION D. KIMMEL, J. BOUCHARD
REG GEOTECHNICAL ENGINEER PHILLIP A. WALTON BY JOHN C. REAGAN
DATE APPROVED 19-JUL-95 REVISION #1
STRUCTURE NAME WEED RD. 2800' W OF JCT OF RIDGE RD.
B.I.N. _____

SHEET 1 OF 1 HOLE RP- -106

SM 282E (2/76)

PSN 6647 BORNUM 107

REGION 8

COUNTY ORANGE

PIN A030.00.701

PROJECT SUPER COLLIDER - NEWBURGH SITE (EAST)

COORDINATE LOC. (A) NORTH EAST

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING BUREAU
SUBSURFACE EXPLORATION LOG

HOLE DN-X-N107

LINE E.O.P

STA SEE MAP

OFFSET 5

SURF. ELEV. 370 Ft.

DEPTH TO WATER 2 Ft.

DATE START 12-MAY-87 DATE FINISH 12-MAY-87

CASING O.D. 2 7/8" I.D. 2 1/4" WEIGHT OF HAMMER-CASING 300 LBS HAMMER FALL-CASING 18 INS

SAMPLER O.D. 2" I.D. 1 1/2" WEIGHT OF HAMMER-SAMPLER 300 LBS HAMMER FALL-SAMPLER 18 INS

DEPTH ft BELOW SURFACE	BLOWS ON CASING	SAMPLE NO.	BLOWS ON SAMPLER 0/.5	.5/1.0	1.0/1.5	1.5/2.0	DESCRIPTION OF SOIL AND ROCK	MOIST. CONT. (%)
0.0		J1	1				Brown Gravelly SAND , Silty W/Root Fibers & Small % Of (M-LPL)	10
	12			1			Clay	
					1			
	7							
	6							
	11							
5.0	11							
		J2	4				Gray Sandy SAND , W/ Small % Of Gravel (M-NPL)	18
	3			11				
					13			
	21							
	38							
	23							
10.0	23							
		J3	5		"		Gray Clayey SILT , W/Small % Of Gravel & Pockets Of (M-LPL)	17
	22			6			Gray Silty Clay	
					5			
	30							
	40							
	59							
		R1					Run #1 Dark Gray SHALE	
15.0							REC. 60" 100% 12 PIECES	
							RQD = 87%	

BOTTOM OF HOLE AT 19 Ft.

Surface elevation is based on USGS topographic map

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR STATE DESIGN AND ESTIMATE PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO THE STATE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGEMENT OF SUCH AUTHORIZED USERS.

CONTRACT _____ CONTRACTOR _____

DRILL RIG OPERATOR R. DECKER

SOIL & ROCK DESCRIPTION D. KIMMEL, J. BOUCHARD

REG GEOTECHNICAL ENGINEER PHILLIP A. WALTON BY JOHN C. REAGAN

DATE APPROVED 19-JUL-95 REVISION #1

STRUCTURE NAME LINDSAY RD. 350' W OF JCT OF NEW RD.

B.I.N. _____

SHEET 1 OF 1 HOLE DN-X-N107

SM 282E (2/76)

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING BUREAU
SUBSURFACE EXPLORATION LOG

PSN 6647 BORNUM 108
REGION 8
COUNTY ORANGE
PIN A030.00.701
PROJECT SUPER COLLIDER - NEWBURGH SITE (EAST)
COORDINATE LOC. (A) NORTH EAST

HOLE DN-X-N108
LINE E.O.P
STA SEE MAP
OFFSET 75
SURF. ELEV. 450 Ft.
DEPTH TO WATER 1 Ft.

DATE START 08-MAY-87 DATE FINISH 08-MAY-87

CASING O.D. 4 1/2" I.D. 4" WEIGHT OF HAMMER-CASING 300 LBS HAMMER FALL-CASING 18 INS
SAMPLER O.D. 3 1/2" I.D. 3" WEIGHT OF HAMMER-SAMPLER 300 LBS HAMMER FALL-SAMPLER 18 INS

DEPTH ft BELOW SURFACE	BLOWS CASING	SAMPLE NO.	BLOWS ON SAMPLER 0/.5	.5/1.0	1.0/1.5	1.5/2.0	DESCRIPTION OF SOIL AND ROCK	MOIST. CONT. (%)
0.0		J1	P				Brown And Light Brown Clayey SILT , Gravelly W/Root (M-LPL)	36
	3						Fibers & Small % Of Sand	
	25							
	37							
	38							
5.0	33							
		J2	15				Gray Sandy GRAVEL , Silty W/Org. & Small % Of Clay (M-LPL)	8
	6			19				
					53			
	31							
	138							
	117							
10.0	121							
		R1					Run #1 Medium Gray SHALE	
							REC. 53" 98%	
							RQD = 56.8%	
15.0								

BOTTOM OF HOLE AT 14.5 Ft.

Surface elevation is based on USGS topographic map

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR STATE DESIGN AND ESTIMATE PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO THE STATE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGEMENT OF SUCH AUTHORIZED USERS.

CONTRACT _____ CONTRACTOR _____

DRILL RIG OPERATOR R. DECKER
SOIL & ROCK DESCRIPTION D. KIMMEL, J. BOUCHARD
REG GEOTECHNICAL ENGINEER PHILLIP A. WALTON BY JOHN C. REAGAN
DATE APPROVED 19-JUL-95 REVISION #1
STRUCTURE NAME MAPLE AVE. 2650' E OF JCT OF RIDGE RD.
B.I.N. _____

SHEET 1 OF 1 HOLE DN-X-N108

SM 282E (2/76)

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING BUREAU
SUBSURFACE EXPLORATION LOG

PSN 6647 BORNUM 109
REGION 8
COUNTY ORANGE
PIN A030.00.701
PROJECT SUPER COLLIDER - NEWBURGH SITE (EAST)
COORDINATE LOC. (A) NORTH EAST

HOLE DN-X-N109
LINE E.O.P.
STA SEE MAP
OFFSET 5
SURF. ELEV. 380 Ft.
DEPTH TO WATER 3 Ft.

DATE START 12-MAY-87 DATE FINISH 14-MAY-87

CASING O.D. 4 1/2" I.D. 4" WEIGHT OF HAMMER-CASING 300 LBS HAMMER FALL-CASING 18 INS
SAMPLER O.D. 3 1/2" I.D. 3" WEIGHT OF HAMMER-SAMPLER 300 LBS HAMMER FALL-SAMPLER 18 INS

DEPTH ft BELOW SURFACE	BLOWS PER 3" CASING	SAMPLE NO.	BLOWS ON SAMPLER 0/.5	.5/1.0	1.0/1.5	1.5/2.0	DESCRIPTION OF SOIL AND ROCK	MOIST. CONT. (%)
0.0		J1	1				Brown Sandy GRAVEL , Silty W/Root Fibers (M-PL)	14
	7			1				
					1			
	11							
	17							
	26							
5.0	39							
		J2	8				Dark Brown & Brown Silty SAND , Gravelly W/ Small % Of (M-LPL)	18
	45			6			Clay	
					5			
	47							
	225							
	71	R1					Run #1 Dark Gray To Black Fissile SHALE	
							REC. 36" 86%	
10.0							RQD = 87%	
						"		
		R2					Run #2 Dark Gray To Black Fissile SHALE	
							REC. 60" 100%	
							RQD = 62.9%	
15.0								
		R3					Run #3 Dark Gray To Black Fissile SHALE	
							REC. 60" 100%	
							RQD = 100%	
20.0								
		R4					Run #4 Dark Gray To Black Fissile SHALE	
							REC. 60" 100%	
							RQD = 84%	
25.0								

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR STATE DESIGN AND ESTIMATE PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO THE STATE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGEMENT OF SUCH AUTHORIZED USERS.

CONTRACT _____ CONTRACTOR _____

DRILL RIG OPERATOR R. DECKER
SOIL & ROCK DESCRIPTION D. KIMMEL, J. BOUCHARD
REG GEOTECHNICAL ENGINEER PHILLIP A. WALTON BY JOHN C. REAGAN
DATE APPROVED 19-JUL-95 REVISION #1
STRUCTURE NAME BARRON RD. 3800' N OF JCT OF FORESTER RD.
B.I.N. _____

SM 282E (2/76)

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING BUREAU
SUBSURFACE EXPLORATION LOG

PSN 6647 BORNUM 109
REGION 8
COUNTY ORANGE
PIN A030.00.701
PROJECT SUPER COLLIDER - NEWBURGH SITE (EAST)
COORDINATE LOC. (A) NORTH EAST

HOLE DN-X-N109
LINE E.O.P.
STA SEE MAP
OFFSET 5
SURF. ELEV. 380 Ft.
DEPTH TO WATER 3 Ft.

DATE START 12-MAY-87 DATE FINISH 14-MAY-87

CASING O.D. 4 1/2" I.D. 4" WEIGHT OF HAMMER-CASING 300 LBS HAMMER FALL-CASING 18 INS
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DEPTH ft BELOW SURFACE	BLOWS ON CASING	SAMPLE NO.	BLOWS ON SAMPLER 0/.5	.5/1.0	1.0/1.5	1.5/2.0	DESCRIPTION OF SOIL AND ROCK	MOIST. CONT. (%)
25.0								
		R5					Run #5 Dark Gray To Black Fissile SHALE REC. 60" 100% RQD = 98%	
30.0								
		R6					Run #6 Dark Gray To Black Fissile SHALE REC. 60" 100% RQD = 98%	
35.0								
		R7					Run #7 Dark Gray To Black Fissile SHALE REC. 60" 100% RQD = 100%	
40.0								

BOTTOM OF HOLE AT 42 Ft.

Surface elevation is based on USGS topographic map

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DEPTH IN Ft BELOW SURFACE	BLOWS ON CASING	SAMPLE NO.	BLOWS ON SAMPLER 0/.5	.5/1.0	1.0/1.5	1.5/2.0	DESCRIPTION OF SOIL AND ROCK	MOIST. CONT. (%)
25.0								
		R5					Run #5 Dark Gray To Black Fissile SHALE REC. 60" 100% RQD = 98%	
30.0								
		R6					Run #6 Dark Gray To Black Fissile SHALE REC. 60" 100% RQD = 98%	
35.0								
		R7					Run #7 Dark Gray To Black Fissile SHALE REC. 60" 100% RQD = 100%	
40.0								

BOTTOM OF HOLE AT 42 Ft.

Surface elevation is based on USGS topographic map

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